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Correlation between COMP and CTXII biomarkers and clinical, magnetic resonance and arthroscopic findings in patients with an anterior cruciate ligament ruptureD. Figueroa¹, R. Calvo², A. Vaisman², G. Cortes¹, C. Moraga¹;¹Traumatología, Clínica Alemana, Santiago, Chile, ²Orthopaedic Surgery, Clínica Alemana, Santiago, Chile**Purpose:** to establish a correlation between biomarkers COMP (serum and synovial fluid), and urine CTXII with the clinical, magnetic resonance and arthroscopic findings in patients under the age of 40 that underwent to an anterior cruciate ligament reconstruction.**Methods and Materials:** biomarkers COMP (serum and synovial fluid) and CTXII (urine) were measured by ELISA in 30 patients that underwent to an ACL reconstruction before the surgery. All were male, with an age average of 30,6 y.o. Clinical, magnetic resonance and arthroscopic findings were recorded in a database. Statistical analysis was performed by ANOVA and Pearson correlation test and non parametrics for multiple variables**Results:** media of COMP was 1,670 µg/ml in serum, 34,052 µg/ml in synovial fluid and CTXII 33,298 ng/ml. No correlation was founded between the clinical findings (age, associated lesions) and biomarkers levels. No correlation was founded between Magnetic resonance findings (subchondral edema, osteochondral lesion) and biomarkers levels. Finally no correlation was founded between arthroscopic findings (chondral or osteochondral lesions, meniscal injuries) and biomarkers levels.**Conclusions:** Conclusions: There is no correlation between the biomarkers levels of osteoarthritis measured in serum, synovial fluid and urine, with the clinical, magnetic resonance and arthroscopic findings in patients with an ACL rupture

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Articular cartilage injuries in 1309 knee arthroscopies, a public health problem in a developing country?F.E. Villalobos Jr¹, A. Izaguirre², A. Almazan², F. Cruz², F. Pérez², J.C. Ibarra²;¹Sports Orthopaedics And Arthroscopy, National Institute of Rehabilitation, Mexico city, Mexico CITY, Mexico, ²Sports Orthopaedics And Arthroscopy, National Institute of Rehabilitation, Mexico city, Mexico**Purpose:** To determine the frequency and characteristics of chondral injury in patients who were intervened at the Service of Sports Orthopaedics and Arthroscopy of the National Institute of Rehabilitation (I.N.R.), in Mexico.**Methods and Materials:** One thousand three hundred and nine knee arthroscopies realized by 5 attending physicians in January of 2002 through out December of 2005 in the I.N.R. were reviewed from medical records. After each surgery, the chondral injuries observed were classified on site, size, and severity according to the scale of ICRS and associated injuries.**Results:** The average time between the injury and the surgery was 47.5 months. There was a prevalence of 61.4% of chondral injury, with meniscal injury associated in 44.1%, anterior cruciate ligament in 19% and posterior cruciate ligament in 0.4%. The primary chondral defect was localized: patellofemoral 39.3%, medial condyle 27.8%, lateral condyle 15.9%, lateral tibial plateau 10.1%, and medial tibial plateau 6.7%. A chondral ICRS grade III-IV defect was found in 73.8%, grade II in 21.4% and grade I in 4.6%.**Conclusions:** Chondral injury is a common finding (prevalence-61.4%) of knee arthroscopy in our young population (average-37.3 years old). It was frequently a III-IV ICRS injury (73.8%), localized patellofemoral (39.3%) and medial condyle (27.8%), associated with meniscal (44.1%) and ligamentous injuries (19.4%). Our reports are consistent with those reported by developed countries. Because it is known that chondral injury leads to early Osteoarthritis, this is a growing concern of public health world wide and we need to have a greater conscience of its impact in our developing countries.

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Design and implementation of image processing software for osteoarthritis assessmentR.G. Wachjudi¹, T.J. Mengko²;¹Rheumatology, Dr. Hasan Sadikin General Hospital, Bandung, Indonesia, ²Biomedical Sciences, Institute Teknologi Bandung, Bandung, Indonesia**Purpose:** To design a software system to determine the region of interest of visual characteristics found in knee OA, and to provide exact measurement of joint space width.**Methods and Materials:** We used 53 knee radiographs to detect cartilage thickness as reflected by joint space width between femur and tibia. ROI detection was performed by edge based segmentation method. Normal and narrowing joint were classified using Maximum Likelihood (ML) method. The first step of this block was to threshold the image with its mean intensity. We derived the angle parameter for rotation using linear regression of the resulting binary image. After rotation, horizontal translation was used to place the 'bone axis' in the center of the image and vertically translated to locate the joint space in the center of the image height, using the mean intensity array from each row of the image. The position of the joint space was estimated by determining the local minima of the array, then placed it in the middle of the image height.**Results:** The techniques could be used as an automated segmentation and calculation of joint space width. The algorithm has been implemented successfully using software developer MS Visual C++ 6.0. Diagnosis normal JSW problem Mean 0.7389 0.4923 standard dev. 0.1862 0.3629 Table 1. Joint Space Width Measurement Results By assuming that the probability density function is normal-distributed, we may classify those 2 classes using Maximum Likelihood (ML) criteria.**Conclusions:** This automated vision system could be used to calculate joint space width and other OA pathology in knee joint radiographs.

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Magnetic resonance imaging of cartilage repair in the knee: benefits of characterized chondrocyte implantation compared to microfracture.I. Van Breuseghem¹, W.C.J. Huysse², J. Vanlauwe³, F.P. Luyten⁴, K.L. Verstraete²;¹Radiology, Radiologisch Centrum Waasland, Sint-Niklaas, Belgium, ²Radiology, Ghent University, Gent, Belgium, ³Leuven, Belgium, ⁴Rheumatology, University Hospitals Leuven, Leuven, Belgium**Purpose:** MRI has become a powerful, non-invasive tool for the diagnosis and post-operative monitoring of cartilage lesions and cartilage repair tissue. The purpose of this study was to compare clinically relevant MRI findings 12 months after characterized chondrocyte implantation (CCI) with ChondroCelect® or microfracture (MF) for symptomatic cartilage lesions of the knee as part of a Phase III trial.**Methods and Materials:** CCI (n=51) was compared to MF (n=61) in patients with a grade III-IV cartilage defect of the femoral condyle in a prospective, randomized, multicenter trial. Structural repair at 12 months was centrally assessed by 2 independent MRI specialists who were blinded to the patient's treatment allocation, using the four clinically most relevant items from a modified MOCART (magnetic resonance observation of cartilage repair tissue) scale: filling of the defect, surface of the repair tissue, subchondral lamina integrity, subchondral bone reaction.**Results:** Significantly less subchondral bone abnormalities (p=0.040; CCI n=46, MF=49) and better subchondral lamina integrity (p=0.001; CCI n=46, MF=49) were observed in favor of the CCI group. No significant differences were recorded for the variables 'filling of the defect' (p=0.148; CCI n=47, MF n=53) and 'surface of the repair tissue' (p=0.703; CCI n=47, MF n=53).**Conclusions:** Cartilage lesions of the knee treated with CCI had significantly better MRI parameters related to the subchondral bone and the subchondral lamina. This could suggest worse clinical outcome after MF in the long run as a positive correlation was demonstrated between MRI assessment of subchondral bone and clinical outcome.